

MAHARASHTRA AGRICULTURAL UNIVERSITIES
 LOWER AGRICULTURE EDUCATION
 Syllabus for Agri. Polytechnic
 2012-2013

Subject : General Science-I

Part : A (Physics)

Year : First

Total Marks : 50

Syllabus for Theory

Marks : 40

Sr. No.	Name of the Topic	Teaching hours	Marks
1.	Units and measurements		
1.1	Need for measurements, Units for measurements, System of units, Definition of Unit, Requirements for good unit, Fundamental and derived quantities and their units.	2	2
1.2	Meaning and definitions of dimensions, Determination of dimension of area, volume, density, velocity, acceleration, momentum, force.	1	2
1.3	Meaning of accuracy, Meaning and definition of mistakes and errors, Types of errors, Calculation of minimization of errors.	1	2
2	Scalars and Vectors:		
2.1	Meaning, definition and examples of scalars and vectors.	1	1
2.2	Null vector, negative vector, resultant vector, Addition and subtraction of vectors, Law of triangle of vector	1	2
3	Force:		
3.1	Types of forces such as real, pseudo forces and their examples.	1	1
3.2	General idea of gravitational force, Electromagnetic force, Nuclear force, (weak and strong), Momentum and law of conservation of linear momentum.	2	3
4	Friction in solids and liquids :		

	4.1	Origin of frictional forces, Type of frictions, Laws of static friction and its experimental verification, Laws of kinetic friction.	2	3
	4.2	Meaning and definition of viscosity, Streamline flow and turbulent flow, Viscous force and viscous drag.	2	3
5		Sound waves :		
	5.1	Definition of wave and wave motion, Types of waves depending upon the necessity of medium (Mechanical and non mechanical waves)	2	3
	5.2	Progressive waves and its types (Longitudinal and transverse waves) and their properties.	1	2
	5.3	Definition of amplitude, wave length, period, frequency, proof for relation, Newton's formula for the velocity of sound, Laplaces' formula.	2	3
6		Thermal Expansion :		
	6.1	Expansion of solids, Types of expansion of solids (Linear, areal and volume expansions),	1	2
	6.2	Derivation of coefficient of linear expansion, areal and volume expansion.	1	2
7		Current Electricity:		
	7.1	Ohms' law, Definition of one ohm, resistance, Specific resistance, Conductivity, conductors, insulators, semiconductors.	2	3
	7.2	Temperature dependence of resistance, thermistor, superconductivity, EMF and internal resistance of cell.	1	2
8		Optics :		
	8.1	Reflection of light by spherical mirrors (Concave and convex), Focal length of spherical mirrors,	1	2
	8.2	Refraction of monochromatic light, Laws of refraction, Snells' law, Dispersion of light and prism formula.	1	2
		Total	25	40

Reference Books :

1. Physics book for XI standard recommended by Maharashtra State Board of Secondary and Higher Secondary Education, Pune- 411 004
2. Physics for XI Standard By Dr. Gambhir, Narendra Prakashan, Pune

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Syllabus for Practical

Marks : 10

Sr. No.	Name of the Practical	Hours	Marks
1.	To study the use of log table	--	--
2.	To determine the volume of solid sphere by using vernier caliper	2	2
3.	To determine the radius & area of cross section of wire and thickness of glass plate by Micrometer screw gauge	2	2
4.	To find the coefficient of static friction between the solid block and glass surface	2	2
5.	To determine the resistance and specific resistance of a given wire by using Ohms' law.	2	2
6.	To determine the refractive index (RI) of prism by deviation curve method	2	2

Reference Books:

1. Practical Manual for Physics by Maharashtra State Board of Secondary and Higher Secondary Education, Pune- 411 004

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